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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,141	07/02/2003	Kyung-Hun Jang	784-52(SI-18902-US)	3347

28249 7590 02/14/2007
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EXAMINER

DAVENPORT, MON CHERI S

ART UNIT	PAPER NUMBER
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2609

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/612,141

Applicant(s)

JANG ET AL.

Examiner

Mon Cheri S. Davenport

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/02/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/9/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

This Action is in response to the Application filed July 2, 2003.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The references listed in the Information Disclosure Statement file on January 9, 2006 have been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 10 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding **claim 10**, the claimed data structure of a multicast packet train header is nonstatutory subject matter. Since a data structure is not a tangible, physical article or object to constitute a manufacture, and it's not a machine, process or composition of matter; Claim 10 does not fall within a statutory category of invention.

Regarding **claim 11-14**, the claimed computer readable medium is nonstatutory subject matter. Since a computer readable medium is not a tangible, physical article or object to constitute a manufacture, and it's not a machine, process or composition of matter; Note that as discloses in specification the phrase computer readable medium is

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defined as carrier waves. Carrier wave is not tangible, physical article or object to constitute a manufacture and is not a machine, process or composition of matter. Non-functional descriptive material cannot be made statutory. See MPEP 2100 for guidance on computer related inventions.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claim 1, 2, 4, 5, 11 and 12** rejected under 35 U.S.C. 102(b) as being anticipated by Paul et al. (Reliable Multicast Transport Protocol (RMTP))

Regarding **claim 1** Paul et al. discloses a multicast data retransmission method, comprising the steps of:

(a) grouping wireless terminals based on distances between an access point and the wireless terminals and amplitudes of signals output from the wireless terminals (***see Paul et al., page 413, column 2, paragraph 3-4, Choice of DR(designated receiver) and formation of local regions: each receiver chooses a DR that is nearest to it in terms of number of hops, effectively a local region is defined***) ;

(b) selecting a repeater(***designated receiver***) to retransmit multicast packets from each group(***see Paul et al., page 413, column 2, paragraph 3-4, Choice of DR(designated receiver) and formation of local regions: each receiver chooses a DR that is nearest to it in terms of number of hops, see page 407, paragraph 1, lines 5-10, designated receivers (DR) which is responsible for retransmitting lost packets to the corresponding receivers***)and arranging the order in which repeaters retransmit multicast packets(***see Paul et al., page 408, column 1, paragraph 3, the function of RMTP is to deliver packets from the sender to the receivers in sequence along the multicast tree***);

Paul et al. discloses (c) creating a multicast packet train header indicating characteristics of each of the multicast packets (***see Paul et al., page 410, column 1,***

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paragraph 4, the sender in RMTP divides the data to be transmitted into fixed-sized data packets, see Table 1(RMTP Packet types), page 410);

Paul et al. discloses (d) multicasting the created multicast packet train header (see *Paul et al.*, page 410, column 1, paragraph 3, lines 6-7, **S multicast a window of data packets to all receivers using the global multicast tree**); and

Paul et al. discloses e) retransmitting the multicast packets in the order arranged in step (b) (see *Paul et al.*, page 414, column 1, paragraph 2, **DR's retransmit lost packets to the receivers in there respective local regions**).

Regarding claim 2, Paul et al. discloses everything claimed as applied above (see claim 1) In addition the method includes:

wherein step (b) further comprises the step of selecting a wireless terminal, which outputs a signal with the greatest amplitude , as the repeater (DR) from each group by determining a status of a channel of the wireless terminal based on the amplitude of signal output from the wireless terminal (see *Paul et al.*, page 413, column 2, paragraph 4-6, **each DR as well as the sender periodically sends a special packet , called the SEND_ACK_TOME packet which includes a TTL(time-to-live field), it will have then chosen the DR nearest to it in terms of number of hops**).

Regarding claim 4 Paul et al. discloses a multicast data retransmission method used in a system that retransmits multicast packets by using a wireless terminal and an access point, the multicast data retransmission method comprising the steps of:

(a) receiving from the access point information on a group which the wireless terminal belongs to(see *Paul et al.*, page 409, paragraph 2, **RMTP groups receivers into local regions and uses a DR as a representative of the local region**) ;

(b) if the wireless terminal is selected as a repeater that is to retransmit the multicast packets, receiving information from the access point about the order in which repeaters retransmit the multicast packets (see *Paul et al.*, page 409, column 1, paragraph 2, **RMTP provides sequenced, lossless delivery of bulk data from one sender to a group of receivers. The sender ensures reliable delivery by selectively retransmitting lost packets in response to the retransmission request of the receiver.**); and

(c) receiving a retransmission command from the access point and retransmitting the multicast packets to other wireless terminals (see *Paul et al.*, page 409, paragraph 2, **only the DR's send their own status to the sender indicating which packets they have received and which packets they have not received. The receivers in a local region send their status to the corresponding DR**).

Regarding claim 5, Paul et al. discloses everything claimed as applied above (see claim 4) In addition the method includes:

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wherein step (b) further comprises the step of, if the wireless terminal is not selected as the repeater, receiving the retransmitted multicast packets and discarding the retransmitted multicast packets if the multicast packets have already been received without a packet error (*see Paul et al., page 413, column 2, paragraph 6, if DR selected by a set of receivers fail, then the same set of receivers will choose the DR least upstream from the failed DR as the new AP(Access point).*

Regarding claim 11, Paul et al. discloses everything claimed as applied above (see claim 1) In addition:

A computer readable medium having embodied thereon a computer program for the multicast data retransmission method of claim 1 (*see Paul et al., page 415, paragraph 3, a multicast delivery system at user level using Mbone technologies, Mbone routers use IP tunnels to forward multicast packets to IP routers that cannot handle multicast packets).*

Regarding claim 12, Paul et al. discloses everything claimed as applied above (see claim 4) In addition:

A computer readable medium having embodied thereon a computer program for the multicast data retransmission method of claim 4(*see Paul et al., page 415, paragraph 3, a multicast delivery system at user level using Mbone technologies, Mbone routers use IP tunnels to forward multicast packets to IP routers that cannot handle multicast packets).*

5. **Claim 6, 8 9 and 13** rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al. (European Patent Application Number 01303442.6).

Regarding **Claim 6** Sato et al. discloses a multicast data retransmission method, comprising the steps of:

(a) grouping wireless terminals based on distances between an access point and the wireless terminals (*see Sato et al., page 3 , paragraph [0021], grouping radio terminals in the service area*) and amplitudes of signals output from the wireless terminals(*see Sato et al., page 3, column 4, paragraph [0022], retransmission control method configured basis of quality of communications between the information delivery apparatus and each of the radio terminals*); an

(b) selecting a repeater to retransmit multicast packets from each group and retransmitting the multicast packets group (*see Sato et al., page 3, column 3, lines 20-22, determining at least one radio terminal permitted to be placed in retransmission control*).

Regarding **claim 8** Sato et al. discloses an apparatus for multicast data retransmission, the apparatus comprising (*see Sato et al., figure 5*):

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a grouping unit which groups wireless terminals based on distances between the wireless terminals (*see Sato et al., page 3 , paragraph [0021], grouping radio terminals in the service area*, and amplitudes of signals output from the wireless terminals (*Sato et al. Figure 5, element 25, retransmission permitted –terminal determining unit*);

a repeater selecting and retransmission order arranging unit which selects the repeater to retransmit the multicast packets from each group, and arranges the order in which repeaters retransmit the multicast packets (*Sato et al., Figure 5, element 24, information delivery control unit, performs a control to retransmit multicast information*) ;

a multicast packet train header creating unit which creates a multicast packet train header before the multicast packets are multicasted (*Sato et al. , Figure 5, element 22, multicast information memory unit*) ;

a multicast packet train header transmitting unit which transmits the created multicast packet train header to all wireless terminals(*Sato et al. , Figure 5, element 21, Transmitter / receiver*); and

a retransmitting unit which retransmits the multicast packets in the order arranged by the repeater selecting and retransmission order arranging unit, after the multicast packet train header transmitting unit multicasts the multicast packet train header(*Sato et al., Figure 5, element 24, information delivery control unit, performs a control to retransmit multicast information*).

Regarding claim 9, Sato et al. discloses everything claimed as applied above (see claim 8) In addition the apparatus includes:

wherein the retransmitting unit transmits the retransmission command to a repeater, which is first to retransmit the multicast packet, and transmits the retransmission command to a repeater which is second to retransmit the multicast packet(*see Sato et al. , page 3, column 4, paragraph [0027], a first unit determining at least one radio terminal permitted to be placed in retransmission control ; and a second unit delivering , when a request for retransmitting the multicast information sent by the above mentioned at least one radio terminal is received, the multicast information to the radio terminals*).

Regarding claim 13, Paul et al. discloses everything claimed as applied above (see claim 6) In addition:

13. A computer readable medium having embodied thereon a computer program for the multicast data retransmission method of claim 6 (*see Sato et al., Figure 5*).

6. **Claim 10 and 14** rejected under 35 U.S.C. 102(e) as being anticipated by Muzutani et al. (US Patent Number 7,065,066)

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Regarding **claim 10** Muzutani et al. discloses a structure of a multicast packet train header used in multicast data transmission, the structure of multicast packet train header comprising (*see Muzutani et al., Figure 3, element 30, header*):

multicast train ID information which is used to identify a multicast packet train (*see Figure 3, element 31, packet ID*);

information about the number of groups of wireless terminals, the wireless terminals being connected to a wireless network and receiving the multicast packets (*see Figure 4, element 11, Group management table, Group #, Terminal ID*);

information about the number of multicast packet in each group which indicates the number of multicast packet in each group, the multicast packet being to be transmitted after the multicast packet train header is multicasted (*See figure 3, element 30, header and Figure 4, element 11, group management table*); and

forward error correction information which is used to correct an error of the multicast packet train header (*see figure 3, element 37, Error correction code*).

Regarding **claim 14**, Paul et al. discloses everything claimed as applied above (*see claim 10*) In addition:

A computer readable medium having embodied thereon a computer program for the structure of the multicast packet train header of claim 10 (*see Mizutani et al., Figure 2, Communication terminal*)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claim 3** rejected under 35 U.S.C. 103(a) as being unpatentable over Paul et al. (Reliable Multicast Transport Protocol (RMTP)) in view of Mizutani et al. (US Patent Number 7,065,066).

Regarding **claim 3**, Paul et al. discloses everything claimed as applied above (*see claim 1*) In addition the method includes:

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wherein the multicast packet train header comprises (*see Paul et al., Page 410, Table 1*):

Paul et al. discloses information about the number of multicast packets in each group, the multicast packet being transmitted after the multicast packet train header is multicast(*see Paul et al. page 409, Paragraph 2, the receivers in a local region send their status to the corresponding DR. the DR uses the status messages to perform local retransmissions to the receivers*); and

Paul fails to specifically disclose Multicast train ID, the number of groups and forward error correction information.

Mizutani et al. discloses a multicast train ID information which is Used to identify a multicast packet train (*Mizutani et al. Figure 3, packet ID*); information about the number of groups of wireless terminals, the wireless terminals being connected to a wireless network and receiving the multicast packets (*see Mizutani et al., figure 3, element 30, header, and figure 4, element 11, group management table*)

forward error correction information which is used to correct an error of the multicast packet train header (*Mizutani et al. , see figure 3, element 37, Error correction code, which detects and corrects a transmission error in the header*)

Therefore, it would have been obvious to a person having ordinary skilled in the art at the time the invention was made to provide Paul et al. with a multicast packet header that includes Multicast group id and the number of groups because it helps to continue communication without a break among the remaining terminals even if a given communication terminal moves out of communication range (see Mizutani et al., column 2, lines 53-56).

9. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (European Patent Application Number 01303442.6) in view of Paul et al. (Reliable Multicast Transport Protocol (RMTP)).

Regarding **claim 7**, Sato et al. discloses everything claimed as applied above (*see claim 6*) In addition the method includes:

wherein step (b) further comprises the steps of:

(b1) selecting a wireless terminal which outputs a signal with the greatest amplitude as the repeater by determining a status of a channel of the wireless terminal based on the amplitude of signal output from the wireless terminal(*see Sato et al. , page 3, column 3, paragraph [0016], determining at least one radio terminal permitted to be placed in retransmission control,)(paragraph [0022], the retransmission control method configured on the basis of a quality of*

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communication between the information delivery apparatus and each of the radio terminals);

Sato et al. fails to specifically disclose determining the order and repeating in the order.

Paul et al. discloses (b2) determining the order in which repeaters retransmit the multicast packets (*see Paul et al., page 408, column 1, paragraph 3, the function of RMTP is to deliver packets from the sender to the receivers in sequence along the multicast tree*); and

(b3) transmitting a retransmission command to the repeaters in the order in which the repeaters retransmit the multicast packets (*see Paul et al., page 414, column 1, paragraph 2, DR's retransmit lost packets to the receivers in there respective local regions*).

Therefore, it would have been obvious to a person having ordinary skilled in the art at the time the invention was made to provide Sato et al. with determining the order and repeating in the order because this make the retransmission method more reliable.

Citation of Pertinent Prior Art

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
11. Whetten et al. (An overview of Reliable Multicast Transport Protocol II).
12. Farinacci et al. (US Patent Number 7,016,351) see figure 2B.
13. Chuach et al. (US Patent Application Publication Number 2005/0259643) see abstract.
14. Ketcham et al. (US Patent Number 6,594,272) see abstract.
15. Mamillapalli et al. (US Patent Number 7,095,739) reliable multicast communication.
16. Baker et al. (US Patent Number 5,490,139) see abstract.

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17. Lo et al. (US Patent Number 6,122,483) multicast messaging in a public satellite network.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mon Cheri S. Davenport whose telephone number is 571-270-1803. The examiner can normally be reached on Monday - Friday 8:00 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on 571-272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MD/md


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SUPERVISORY PATENT EXAMINER 2/3/07